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ioimage

Release Notes

ioimage HD CF-5212/CF-5222

Fixed IP Analytic Cameras

GA Release

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1. Version Content

This version release supports the following key features:

- Full HD 1080p (CF-5222)/HD 720p (CF-5212)
- H.264/MJPEG IP streaming and analog video outputs
- Support for analytics and relay events triggered through Latitude
- Two-way audio support
- Solo Setup recording for a single camera
- Reduced false alarms
- Enhanced detection from a distance
- Improved analytic detection for scenes with high movement activity
- MTU setup for encrypted networks

This version corrects potential vulnerability of the device's Linux-based operating system to the GNU Bash Remote Code Execution Vulnerability (CVE-2014-6271), also known as the Bash Bug or ShellShock. The vulnerability, if not corrected, could allow an attacker to gain control over the device. Code has been added to the device's operating system in order to protect it against potential attack.

This document includes Supported Products and Platforms, Key Features, Limitations, Known Issues, Upgrade Procedure, and Latitude Compatibility.

Related Documentation

The following documentation can be downloaded from the Downloads tab of the product page for each product on the DVTEL web site:

- *ioimage HD CF-5212/CF-5222 User and Installation Guide:* *http://www.dvtel.com/products-solutions/video-analytics/cameras/ioimage-hd-1080p/*
- *ioimage HD CF-5212/CF-5222 Quick Installation Guide:* *http://www.dvtel.com/products-solutions/video-analytics/cameras/ioimage-hd-1080p/*
- *ioimage HTML Edition Units User's Guide:* http://www.dvtel.com/products-solutions/video-analytics/
- *DNA 2.0 User Manual:* *http://www.dvtel.com/products-solutions/tools/*

1.1 Version Details

Full version details:

- Camera firmware version dt20141126NSX
- Analytics firmware version 2.1.1.245
- Analytics web page firmware version 2.1.1.245

1.2 Firmware Version Location

The firmware is available from DVTEL's Partner Portal and SharePoint site.

2. Supported Products and Platforms

This version is applicable to the following products:

Product Name	Description
CF-5222-00	ioimage HD 1080p fixed IP camera with built-in video analytics and H.264/MJPEG compression
CF-5212-00	ioimage HD 720p fixed IP camera with built-in video analytics and H.264/MJPEG compression
Latitude 6.3 CP1	Latitude 6.3 Camera Pack 1
Latitude Update over CP1, version 6.3.0.4135	Latitude update that supports these cameras. Installing the Latitude update is mandatory.
DNA 2.0	DVTEL Network Assistant (DNA) version 2.0.4.1 and above support IOI unit discovery, setup and firmware upgrade.

Note:

This firmware version is supported by Latitude, Horizon and Meridian and will be supported by version 6.4.

3. Key Features

ioimage HD CF-5212/CF-5222 includes the following key features:

3.1 Full HD 1080p (CF-5222)/HD 720p (CF-5212)

The ioimage HD camera supports resolutions up to 1080p on the CF-5222 and 720p on the CF-5212. Following are the supported resolutions for each model:

CF-5222		CF-5212	
PAL	**NTSC**	**PAL**	**NTSC**
1920 x 1080	1920 x 1080	1280 x 1024	1280 x 1024
1280 x 1024	1280 x 1024	1280 x 720	1280 x 720
720 x 576	720 x 480	720 x 576	720 x 480

3.2 H.264/MJPEG IP Streaming and Analog Video Outputs

The units support the following MJPEG/H.264 frame rate settings:

- The default setting of the MJPEG frame rate is *30* fps in NTSC and *25* fps in PAL.
- The default setting of the H.264 frame rate is *30* fps in NTSC and *25* fps in PAL The setting range is from *1* to *30* in NTSC and *1* to *25* in PAL. Settings are:
  - PAL: *1, 5, 13,* and *25* fps
  - NTSC: *1, 2, 3, 6, 7.5, 10, 15,* and *30* fps

3.3 Two-way Audio Support

Bidirectional audio is supported by Latitude and via the camera's user interface in Unicast mode only. Users with Talk and Listen permissions can use two-way audio, which is enabled from the **Home** page of the unit's browser-based interface. Latitude supports G.711 audio compression from the ioimage HD audio output.

Note:

Multicast support is available only for Audio-in.

3.4 Solo Setup Recording for a Single Camera

The Solo Setup function enables you to install and setup the camera at a remote site without requiring another person's assistance. It is very useful and should be used even if you have another person's assistance.

3.5 Reduced False Alarms

The analytic firmware includes an algorithm that improves the identification of people who are standing or moving upright in a scene. The system can detect sophisticated intruders (for example a camouflaged or crawling person), as well as enable the identification of upright people, which will reduce false alarms. This function is enabled or disabled according to the rule in the *Basic Settings* area of the **Analytics > Rules** screen.

Note:

The following limitations apply to this function:

1. It is possible that a person who is not standing upright might not be detected when:
   - Crawling
   - Walking on all four (like an animal)
   - Camouflaged to look like an inanimate object (i.e., small tree)
   - Running and viewed from the side
   - Bent over and viewed from the side
2. The camera should not be facing straight down (i.e., it should be at a 30-40 degree angle from the object).

3.6 Enhanced Detection from a Distance

The unit's analytic firmware includes an algorithm that improves the distance from which smaller objects are detected. This function is disabled by default. To enable this function, check the checkbox in the *Advanced Settings* area of the **Analytics > Firmware** screen.

3.7 Improved Analytic Detection for Scenes with High Movement Activity

Ioimage HD offers enhanced detection in scenes where there are large or multiple objects, and there is movement in up to 80% of the frame. This function is enabled by default in the *Advanced Settings* area of the **Analytics > Firmware** screen.

3.8 MTU Setup for Encrypted Networks

When data is encrypted on a network, additional bytes are added to a data packet, which slows real-time transmission time. In order to improve real-time video performance, the MTU (Maximum Transmission Unit) size can be defined in the MTU text box in the *Advanced* section of the **System > Network >** screen. The default value is 1500, which is the maximum RTP packet size. The minimum value is 700. Select the value according to the size of the packets that you are transmitting.

4. Changes from the Previous Version (dt20140929NSX)

4.1 1280 x 1024 Resolution on CF-5212

CF-5212 now supports 1280 x 1024 resolution in addition to the previous resolutions.

4.2 Protection against Bash Bug

This version corrects potential vulnerability of the device's Linux-based operating system to the GNU Bash Remote Code Execution Vulnerability (CVE-2014-6271), also known as the Bash Bug or ShellShock. The vulnerability, if not corrected, could allow an attacker to gain control over the device. Code has been added to the device's operating system in order to protect it against potential attack.

5. Limitations

BUG ID	SUMMARY	COMMENTS
557	Video > The aspect ratio is displayed incorrectly in most resolutions in the web interface.	
826	FPS is rounded up in case VMS configures an unsupported FPS value.	
843	On CF 5222, the aspect ratio is not displayed correctly on an analog monitor.	The camera sensor aspect ratio is 16:9 and video is rescaled to 4:3 without cropping.
844	SNMP V3 is not supported.	Use SNMP V1/V2
846	Backup files for the camera configuration must have the same file name in order to be restored.	
859	Video is not visible on the web interface when the camera is set to Multicast and accessed from a different VLAN.	
31510	The downgrade operation is not supported.	
32192	The analytic component takes an additional minute to initialize and provide detection after the camera is accessible.	

6. Known Issues

The following table includes known issues in the GA release:

BUG ID	SUMMARY	COMMENTS
771	Invalid NTP addresses are not flagged to the user.	
786	The camera configuration restore process does not include a progress bar.	
985	Latitude – After rediscovering the camera when changing (a) from Unicast to Multicast mode and (b) from MJPEG to H.264 or vice versa, occasionally the video stream may be displayed incorrectly in a media player like VLC. The primary stream is displayed as MJPEG instead of H264 and vice versa.	After rediscovery, in the unit's web interface: 1. On the **Streaming > Video Format** screen, click **Save** in the *Video Resolution* area. 2. On the **Streaming > Video OCX Protocol** screen, click **Save**.
33961	Latitude - Broadcast discovery by network does not filter ioimage units correctly. Units are discovered on different VLANs.	
34011	Latitude - It is not possible to find and use a custom video profile created on the Latitude **System Setting** screen.	
34909	The detection alert is cleared automatically on the web interface.	
34987	The video becomes jittery when more than two video streams are opened in Unicast.	Supports one stream for VMS and one stream for web setup in parallel

7. Upgrade Procedure

It is necessary to upgrade the camera system firmware and analytics firmware, each of which are contained in separate files.

The firmware can be updated by using the DVTEL Network Assistant (DNA) tool or the camera's web interface. It is recommended to update via DNA.

After performing the upgrade, if you are upgrading from the beta release, there are additional commands to enter from your browser, as explained in section 7.3.

Note:

If you are upgrading from the Beta version, you must remove the DC Viewer before accessing the camera after the upgrade. Uninstall from the *Control Panel\All Control Panel Items\Programs and Features.*

7.1 Upgrading the Camera through DNA

DVTELS's DNA tool can be used to upgrade the camera's system firmware and the analytics firmware simultaneously. ioimage HD cameras are supported by DNA firmware version 2.0.4.1 and above.

To upgrade the camera and analytics firmware

1. Backup your system configuration before performing the upgrade procedure. Backup the analytics configuration by opening the **Analytics > Backup & Restore** screen.
2. Upon discovery of the ioimage HD unit(s), select the relevant unit(s) from the Discovery list.
3. Click the **Firmware** icon on the navigation bar.
4. Select the camera firmware file (`uImage_userland_ioimage_HD_camera_20141126.img`) and analytics firmware file (`ioimage_HD_analytic_2_1_1_245_PAL.utk`. for PAL or `ioimage_HD_analytic_2_1_1_245_NTSC.utk` for NTSC) from the relevant fields in DNA.
5. Click the **Upgrade** button. DNA upgrades both files simultaneously.
6. Run the commands in section 6.3.
7. If camera's TV system setting was PAL, will it return to PAL. If you use NTSC, you must configure the NTSC setting from the **Camera > TV System** screen.
8. Restore the analytics setting by selecting *Analytics settings from file* in the *Restore* section of the **Analytics > Backup & Restore** screen.

Caution:

Performing an analytics restore deletes all settings except the Depth and Rules settings. Responses, Scheduled Actions and On-Screen Display screen settings will not be saved. It is NOT recommended to select *Full restore from file*, which disables the Enhanced detection function.

For further details, refer to the *DNA 2.0 User Manual.*

7.2 Upgrading the Camera through the Web Interface

It is necessary to upgrade the camera system firmware, analytics firmware, and web pages, each of which are contained in separate files. The firmware should be updated in this order:

1. Update camera firmware
2. Update analytics firmware

To upgrade the camera firmware

1. Backup your system configuration before performing the upgrade procedure. Backup the analytics configuration by opening the **Analytics > Backup & Restore** screen
2. Select the **System** tab on the navigation bar.
3. Select the **Software Upgrade** tab on the sidebar.
4. Follow the steps indicated on the screen to perform the upgrade.
5. In Step 2, change the default option to `uImage_userland_ioimage_HD_camera_20141126.img`.
6. If you are updating the firmware from the beta release, run the steps in section 6.3.
7. Restore the system settings from the backup file.

To upgrade the analytics firmware

1. Select the **Analytics** tab on the navigation bar.
2. Select the **Firmware** tab on the sidebar.
3. Click the **Browse** icon to locate the analytics firmware file.
   - For PAL, select `ioimage_HD_analytic_2_1_1_245_PAL.utk`.
   - For NTSC, select `ioimage_HD_analytic_2_1_1_245_NTSC.utk`.
4. Click the **Upgrade** button to upload the analytics firmware.
5. Run the commands in section 6.3.
6. If camera's TV system setting was PAL, will it return to PAL. If you use NTSC, you must configure the NTSC setting from the **Camera > TV System** screen.
7. Restore analytic settings from the backup file.

7.3 Additional Commands to Send after Upgrading from the Beta Release

7.3.1 After upgrading the system firmware

If you are upgrading firmware from the beta release, once the firmware upgrade is completed, depending on the camera, enter the following API command from your Internet browser to configure the TV system setting:

- On CF-5212: http://[IP]/cgi-bin/dynatest/setdefaulttvsystem.cgi?tvsystem=0 . This turns off Shutter (True) WDR.
- On CF-5222: http://[IP]/cgi-bin/dynatest/setdefaulttvsystem.cgi?tvsystem=4. This turns on Shutter (True) WDR.

The camera automatically reboots after the command is processed.

Note:

These commands reset the video format to NTSC. If you want to set the camera to PAL, you must manually set this from the **Camera > TV System** screen.

7.3.2 After upgrading the analytic firmware

After upgrading to firmware version 2.1.1.211 and performing the above commands, follow these additional steps. The first two commands enable switching the enhanced detection capabilities on or off. Sending these commands deletes the analytic setup and causes the DSP to reboot.

1. Copy default settings before restoring factory defaults. Enter the following command in your browser address bar: http://{Camera_IP}:8080/execute.cgi?channel_id=1&is_keep_network_settings=0&opname=restore_to_factory_defaults
2. Reboot camera in order to restore factory defaults. Enter the following command in your browser address bar: http://{Camera_IP}:8080/execute.cgi?opname=fast_boot
3. Clear browser cache after upgrade.
4. On the **Analytics > Firmware** screen, if the *Enable enhanced detection* checkbox is checked, uncheck it. The DSP will reboot.

8. Latitude Compatibility

8.1 Upgrade Procedure

The following Latitude versions should be installed in this sequence:

1. Install Latitude 6.3 on all client and server machines
2. Install Latitude 6.3 CP1 (6.3.0.4100) on all servers
3. Install Latitude Update (LU) Patch 35 (6.3.0.4135) on all servers

8.1.1 Latitude 6.3 Software Links

6.3 Installation CD (6.3.0.25_Install)

https://rcpt.hightail.com/2485609956/81a1345e76d8a202d6c625d6c0fc1eab?cid=tx-020022083502000000000&s=19105

Password: AutoUpdate

6.3 Tools CD (6.3.0.25_Tools)

https://www.yousendit.com/download/UVJpQk0wNXZYSHk1aWNUQw

Password: AutoUpdate

8.1.2 Latitude 6.3 Camera Pack 1 Software Links

6.3 CP1 Installation CD (6.3.0.41_Install)
https://rcpt.hightail.com/2474163491/ee3852bf4c00cc99bb9dc9410da616c5?cid=tx-020022083502000000000&s=19105

psw: CountDown

6.3 CP1 Tools CD (6.3.0.41_Tools)

https://www.yousendit.com/download/elNMeW56TSt1Yk0xZXNUQw

psw: CountDown

8.1.3 Latitude Update Patch

To install the Latitude Update Patch

1. Copy the Latitude Update Patch from the supplied CD or download it from:

   https://www.hightail.com/download/UlRRb243TERWRDhPd3NUQw

   psw: CountDown
2. Run the file on every server and workstation in the system.
3. Upgrade the Directory/EDB.
4. Upgrade each Archiver.
5. After all the servers are upgraded, upgrade the workstations using the method below.
6. In the Latitude client application, from the **Help** tab, select the *Check for Updates* option. A popup opens, indicating that there is an update to download from the Update server.
7. Select **Yes** to download the update file. A popup appears on the screen.
8. Click **Install**. The installation may take several minutes.

8.2 ioimage Limitations in Latitude

Limitations exist on using Latitude to change the following settings, which can be changed on the ioimage HD Streaming screen:

- Streaming > Video Format > Video Resolution: To set MJPEG on Latitude, from the **Video Settings > Live> Advanced Settings > Compression** screen, right-click the unit on the camera tree, and from the **Rediscover unit** dialog box, select the *Discover MJPEG video encoders* checkbox. To set H.264, do not select the checkbox. Click **OK**. The unit is rediscovered with the new video resolution.

- Streaming > Video Format > GOV Settings: To change the GOV setting from Latitude, you must multiply the frame rate by the key frame interval in order to obtain the desired GOV setting. Go to **Video Settings > Live.** In the **General area,** enter the frame rate in the *Frame Rate* field. In the **Advanced** area, enter the key frame interval in the *Key Frame Interval* field.
- Streaming > Video Compression > MJPEG/H.264 Compression setting: You must rediscover the unit after changing the setting in Latitude in **Video Settings > Live> Advanced Settings> Rate Control Mode**.
- Streaming > Video OCX Protocol: If you select Unicast or Multicast mode for the video on Latitude on the **General > Stream Connection Type** screen, this setting is also applied to the audio in port on the device's **Microphone** screen.
- Streaming > Video Compression > CBR mode setting: Constant Bit Rate is detected automatically by Latitude in **Video Settings > Live> Advanced Settings> Rate Control Mode.** This setting cannot be changed in Latitude.
- Camera > Wide Dynamic Range: This setting cannot be changed in Latitude.
- Camera > Backlight Compensation: This setting cannot be changed in Latitude.
- Camera > Day/Night: This setting cannot be changed in Latitude.

9. Disclaimer

By providing this document, DVTEL, Inc. is not making any representations regarding the correctness or completeness of its contents and reserves the right to alter this document at any time without notice.

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